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ABSTRACT

An activity was undertaken to develop written criterion-referenced tests for the agricultural resources component of Applied Principles of Agribusiness and Natural Resources. Intended for tenth grade students who have completed Fundamentals of Agribusiness and Natural Resources Occupations, applied principles were designed to consist of three components, with each component comprising one-third of the school year. The agricultural resources component was designed as a specialized component to be taught together with the common core and one other specialized component. A criterion-referenced test was developed for the agricultural resources component from a list of competencies that was compiled. Project results were a list of specific competencies for the agricultural resources component of Applied Principles of Agribusiness and Natural Resources Occupations and an item bank of multiple choice test items and answer keys for the agricultural resources component. Criteria for selecting items from the item bank for testing purposes were recommended. (Two tables display summary statistics and complete item analyses for each question in the item bank. Appendixes, amounting to over one-half of the report, contain the list of competencies, test items, and answer keys.) (YLB)

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COMPETENCY TEST ITEMS FOR APPLIED PRINCIPLES OF AGRIBUSINESS AND NATURAL RESOURCES OCCUPATIONS

AGRICULTURAL RESOURCES COMPONENT

A Report of Research

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Introduction

The Vocational Education Act of 1963 and the Vocational Education Amendments of 1968 provided the foundation upon which the scope of traditional vocational education programs have been broadened and new programs have been initiated. As a result, vocational agriculture/agribusiness has been characterized by accelerated growth, expanded program offerings, and increased emphasis. For example, in 1967-68, Florida had 229 vocational agriculture/agribusiness departments and employed 284 teachers. According to Kirkland (1979), by the 1978-79 school year the number of departments had increased 62 percent (373 departments) and the number of teachers employed had increased by 103 percent (576 teachers). In the 1982-83 school year, there were 409 departments employing 573 vocational agriculture teachers (Department of Agricultural and Extension Education, University of Florida, 1982).

During this same period of time, there has been an increased emphasis regarding the need to develop and improve approaches for evaluating educational programs. Currently, a great deal of attention is being given to the concept of accountability in education. Effective educational evaluation is vital for improving education programs since it provides the basis upon which to determine the merits of existing programs, the need for new programs, and revision of existing programs.

In this atmosphere of accountability, legislators, educators, and the general public are asking if expenditures for vocational education are producing desired results and funding agencies are asking for evaluative information upon which to base policy decisions. Moreover, a review of the Vocational Educational Amendment of 1976 (American Vocational Journal, 1976) makes it clear that the writers of that

legislation expect evaluations of vocational education programs to yield data and information useful in formulating on-going and future policy and program decisions. However, from a review of a report to the Governor of Florida, it is obvious that sufficient data regarding the effectiveness of vocational education is not available, thus lending further support for the need to investigate this area (Governor's Commission on Secondary Schools, 1983).

In addition, competency-based education is a development receiving considerable attention in the literature and from professional educators. Florida is currently involved in a major effort to implement competency-based vocational education (Harrington, Johnson, Fagan, Freedman, and Reichman, 1976; Fagan and Huckaby, 1982). Using this instructional model, the curriculum is built around objectives that industry recognizes as necessary for employment. In addition, this model places major emphasis on evaluation of educational programs in terms of pre-specified outcomes, requiring that program outcomes be specified in terms of the behaviors, competencies, and performance capabilities expected of students completing instructional programs. Consequently, one measure of program effectiveness is the extent to which students completing or leaving an instructional program possess or fail to possess the behaviors and competencies specified in the instructional objectives. In instructional systems of this nature, test information is not only used to evaluate program effectiveness, but can also be used to evaluate the student's mastery of instructional objectives as an aid to placing students in appropriate employment or in additional instructional situations (Glasser and Nitko, 1971). Instruments or tests designed especially for this purpose are known as criterion-referenced tests (Hambleton and Novick, 1972).

Criterion-referenced tests are defined as tests made up of items keyed to a set of specific behavioral objectives (Ivens, 1970). Others have defined a criterion-referenced test as one that is deliberately constructed so as to yield measurements that are directly interpretable in terms of specified performance standards (Glasser and Nitko, 1971).

Criterion-referenced instruments have not been developed so that program effectiveness and student achievement can be assessed in most areas of agribusiness and natural resources. This activity was designed to develop criterion-referenced tests for the agricultural resources component of Applied Principles of Agribusiness and Natural Resources Occupations.

Applied Principles of Agribusiness and Natural Resources Occupations (3720) is primarily designed to be taught at the tenth grade level and students who enroll should have completed Fundamentals of Agribusiness and Natural Resources Occupations (3710) in the ninth grade. Applied Principles consists of three components with each component designed to utilize one-third of the school year (60 days). All students complete the common core component consisting of competencies common to all agricultural/agribusiness occupations. The common core competencies are divided into three instructional areas: agricultural business management; agricultural mechanics; and leadership and citizenship development. Instructors then select two specialized components to complete the Applied Principles course from the following taxonomies: agricultural mechanics; agricultural production; agricultural products; agricultural resources; agricultural supplies and services; forestry; and ornamental horticulture. Each of these components are taught for one-third of the school year (60 days) and these two

components should be selected so as to provide the basic competencies for specialized programs offered at the eleventh and twelfth grade. More detailed descriptive information and specific planning data are available in the publication A Suggested Curriculum Guide for Applied Principles of Agribusiness and Natural Resources Occupations (Panhandle Area Educational Cooperative and Florida Department of Education, 1980).

Purpose

The central purpose of this study was to develop and field test written criterion-referenced tests for the agricultural resources component of Applied Principles of Agribusiness and Natural Resources Occupations. In order to achieve this purpose, the following objectives were developed as guidelines for conducting the research:

1. Develop and compile a list of competencies for the agricultural resources component of Applied Principles of Agribusiness and Natural Resources Occupations.

2. Develop a criterion referenced test for the agricultural resources component of Applied Principles of Agribusiness and Natural Resources Occupations.

3. Field test the instrument in order to determine instrument validity and reliability, and to determine item difficulty, item discrimination, and point biserial correlation for each test item.

Procedure

Objective 1

Based upon the objectives identified in the Applied Principles of Agricultural Occupations Curriculum Guide (Curriculum Materials Center, 1978), a list of competencies was generated and compiled. This list was reviewed and modified by a group of teachers, Florida Department of Education regional consultants for agribusiness, and University of Florida faculty members at a Curriculum Development Workshop held in August, 1980 (Panhandle Area Educational Cooperative and Florida Department of Education, 1980). The competency statements reported in this document have undergone minor refinements in wording since their original publication in 1980. These competencies represent the performance standards relating to Applied Principles that students should master prior to entering specialized programs of agribusiness and natural resources education.

Objective 2

Using the competency statements derived in Objective 1, test items were developed for each competency statement. A consultant staff of teachers, regional consultants, and University faculty members was asked to review and revise the items developed. The consultant staff was specifically asked to accomplish the following tasks:

1. To review and revise individual test items.

2. To make certain that the items were technically accurate.

3. To verify that the item did assess the competency it was purported to address.

As a result of this activity, minor changes were made in the test.

Objective 3

The instrument was field tested by administering it to groups of students who had completed Applied Principles of Agribusiness and Natural Resources Ocupations. The data from the field tests were analyzed for item difficulty, item discrimination, and point biserial correlation. A Kuder-Richardson 20 Correlation was calculated as the measure for test reliability.

Results

The major results of this project were: a list of specific competencies for the agricultural resources component of Applied Principles of Agribusiness and Natural Resources Occupations (see Appendix A) and an item bank of multiple choice test items and an answer key for the agricultural resources component (see Appendix B).

Summary statistics relative to the agricultural resources component of Applied Principles are presented in Table 1. The estimate of reliability of the test by the Kuder-Richardson 20 correlation coefficient was .94.

TABLE 1
Summary Statistical Data Relative to the
Agricultural Resources Component of
Applied Principles of Agribusiness
and Natural Resources Occupations

Instructional Area	Factor	Statistic
Agricultural Resources	Number of Students Taking Test	35.00
	Total Number of Items on Exam	67.00
	Highest Possible Score	67.00
	High Score	57.00
	Low Score	8.00
	Mean Score	39.97
	Median Score	42.00
	Mode Score	53.00
	Standard Deviation	13.49
	Standard Error of Measurement	3.25
	Kuder-Richardson 20 Correlation	0.94

A complete item analysis for each question in the item bank relative to agricultural resources is displayed in Table 2. It may be observed that three statistics are presented: item difficulty; item discrimination; and item point biserial coefficient. Item difficulty (index of difficulty) is defined as the proportion of students who correctly answer an item. The average difficulty of a test is the average of the individual item difficulties. For maximum discrimination among students, an average difficulty of .60 is ideal.

Item discrimination (index of discrimination) is a numerical indicator of how the poorer students answered the item as compared to how the better students answered the item. The scores are divided into three groups with the top 27 percent of the scores in the upper group and the bottom 27 percent in the lower group. The number of correct responses for an item by the lower group is subtrated from the number of correct responses for the item in the upper group. The difference in the number correct is divided by the number of students in either group. The process is repeated for each item.

The point-biserial correlation coefficient is computed for the relationship between a variable for which there are only two categories of scores and a variable for which the scores exist on a continuous distribution. Thus, it is a correlation coefficient indicating the relative degree of relationship between how a student responds to an item and the student's total score on the test.

TABLE 2

Item Analysis of the Item Bank of Questions for the Agricultural Resources Component of Applied Principles of Agribusiness and Natural Resources Education

Item Bank Number	Item Difficulty	Item Discrimination	Item Point Biserial Correlation
1	0.54	0.89	0.70
2	0.83	0.44	0.29
3	0.74	0.56	0.51
4	0.69	0.56	0.51
5	0.69	0.56	0.55
6	0.46	0.33	0.27
7	0.60	0.33	0.21
8	0.74	0.67	0.52
9	0.71	0.78	0.71
10	0.71	0.78	0.67
11	0.71	0.78	0.67
12	0.80	0.67	0.65
13	0.69	0.56	0.58
14	0.63	0.56	0.49
15	0.51	1.00	0.72
16	0.54	0.22	0.19
17	0.40	0.78	0.61
18	0.23	0.11	-0.01
19	0.77	0.44	0.31
20	0.67	0.42	0.34
21	0.83	0.33	0.44
22	0.94	0.30	0.34
23	0.69	0.67	0.49
24	0.62	0.44	0.47
25	0.49	0.56	0.51
26	0.86	0.44	0.50
27	0.66	0.89	0.65
28	0.34	0.22	0.30
29	0.74	0.22	0.26
30	0.49	0.22	0.27
31	0.49	0.44	0.40
32	0.49	1.00	0.74
33	0.69	0.44	0.25
34	0.57	0.67	0.52
35	0.90	0.44	0.53

TABLE 2 (CONTINUED)

Item Bank Number	Item Difficulty	Item Discrimination	Item Point Biserial Correlation
36	0.91	0.22	0.52
37	0.86	0.44	0.40
38	0.49	0.44	0.41
39	0.94	0.22	0.55
40	0.86	0.33	0.45
41	0.94	0.22	0.40
42	0.23	-0.11	0.04
43	0.57	0.56	0.40
44	0.69	0.44	0.45
45	0.74	0.33	0.36
46	0.71	0.56	0.39
47	0.51	0.78	0.57
48	0.49	0.78	0.64
49	0.37	0.89	0.55
50	0.31	0.44	0.38
51	0.17	0.33	0.34
52	0.51	0.44	0.28
53	0.80	0.67	0.70
54	0.77	0.44	0.40
55	0.66	0.44	0.33
56	0.86	0.33	0.45
57	0.94	0.22	0.43
58	0.49	1.00	0.68
59	0.80	0.33	0.39
60	0.74	0.44	0.45
61	0.46	0.78	0.54
62	0.40	0.67	0.51
63	0.51	0.78	0.63
64	0.51	0.78	0.64
65	0.43	0.44	0.47
66	0.43	0.00	0.24
67	0.37	0.56	0.43

It is recommended that the following criteria be used for selecting items from the item banks for testing purposes:

1. Select items that pertain to the instructional objectives which specify the outcomes sought in the instructional program.

2. Select items that have a positive item discrimination index and a positive point biserial correlation coefficient.

3. Select items that were answered correctly by a substantial percentage of the students as indicated by the item difficulty score.

4. Select items that have high point biserial correlation coefficients thus indicating a relatively high relationship between how a student responds to the item and the student's total score on the test.

Recommendations

Based upon the results obtained from this activity, the following recommendations were made:

1. The student assessment test can be used by teachers who are interested in determining how well their students are achieving the competencies that are prescribed for the Applied Principles curriculum. These data should provide a reliable method of determining which instructional areas need further development or improvement.

2. It is recommended that the criteria, specified in the results section of this document, be used to select items for testing purposes.

3. Research be initiated to assess program effectiveness and student achievement in Applied Principles using a sample of the programs in Florida.

References

American Vocational Journal. Title II summarized, provision of the new voc. ed. amendments. American Vocational Journal, 1976, 51(8), 33-34.

Curriculum Materials Center. Applied Principles of Agricultural Occupations Curriculum Guide. Department of Agricultural and Extension Education, Gainesville, Florida: University of Florida, 1978.

Department of Agricultural and Extension Education. Agribusiness and Natural Resources Education Personnel Directory, 1982-1983. Gainesville, Florida: Department of Agricultural and Extension Education, University of Florida, 1982.

Fagan, R. L., and Huckaby, B. F. Implementing Competency-Based Vocational Education: A Resource Guide. Tallahassee, Florida: Career Education Center, Florida State University, 1982.

Glasser, R., and Nitko, A. J. Measurement in Learning and Instruction. Washington: American Council on Education, 1971.

Governor's Commission on Secondary Schools. Secondary Education, A Report to the Citizens of Florida, January, 1983.

Hambleton, R. K. and Novick, M. R. Toward an Integration of Theory and Method for Criterion-Referenced Tests (ACT Research Report Number 53). Iowa City, Iowa: The American College Testing Program, September, 1972.

Harrington, C. T., Johnson, B. F., Fagan, R. L., Freedman, S., and Reichman, S. Delivering Competency-Based Vocational Education: A Teacher's Guide to Individualizing Instruction. Tallahassee, Florida: Career Education Center, Florida State University, 1976.

Ivens, S. H. An Investigation of Item Analysis, Reliability and Validity in Relation to Criterion-Referenced Tests. Unpublished doctoral dissertation, Florida State University, 1970.

Kirkland, J. R. Agribusiness and Natural Resources Education Problem Statements and Concerns. A paper presented to Senator Curtis Peterson, Tallahassee, Florida, August 27, 1979.

Panhandle Area Educational Cooperative and Florida Department of Education. A Suggested Curriculum Guide for Applied Principles of Agribusiness and Natural Resource Occupations. Tallahassee, Florida: Florida Department of Education, September, 1980.

APPENDIX A

Competencies for the Agricultural Resources Component of Applied Principles of Agribusiness and Natural Resources Occupations

COMPETENCIES FOR THE AGRICULTURAL RESOURCES
COMPONENT OF APPLIED PRINCIPLES OF
AGRIBUSINESS AND NATURAL
RESOURCES OCCUPATIONS

1. The student will demonstrate knowledge of soil erosion by participating on a land judging team and/or evaluating a site selected by the teacher.

2. The student will recommend practices to control wind or water from the exercise above, using a land judging score card.

3. The student will perform simple soil tests by using a soil testing kit to determine pH, N, P, and K.

4. The student will identify selected commercial species of trees either from a collection of leaves, slides, or on a field trip.

5. The student will demonstrate the ability to plant selected species of trees according to recommendations.

6. The student will follow a management plan and explain the long range practices needed to correct or improve a selected forest area.

7. The student will use woodlot equipment following proper safety, starting, operating, and maintenance procedures, and dress.

8. The student will identify selected wildlife from films, slides, pictures, etc.

9. The student will: (1) Select and/or describe the proper habitat for selected species of wildlife from films, slides, field trips, etc., and (2) Make management plans to improve wildlife habitat (cover, food, and nesting) for selected areas.

10. The student will select the proper federal and state regulations for selected areas in wildlife management.

11. The student will identify selected fish from slides, films, pictures, etc.

12. The student will develop a written plan for farm pond management, including harvesting of fish, weed control, etc.

APPENDIX B

Item Bank of Multiple Choice Test Items and Answer Key for the Agricultural Resources Component of Applied Principles of Agribusiness and Natural Resources Occupations

Item Bank of Test Items for the
Agricultural Resources Component
of Applied Principles of
Agribusiness and Natural
Resources Occupations

Competency:

The student will demonstrate knowledge of soil erosion by participating on a land judging team and/or evaluating a site selected by the teacher.

1. When land is plowed and left bare in areas of limited rainfall, which type of erosion is most likely to occur?

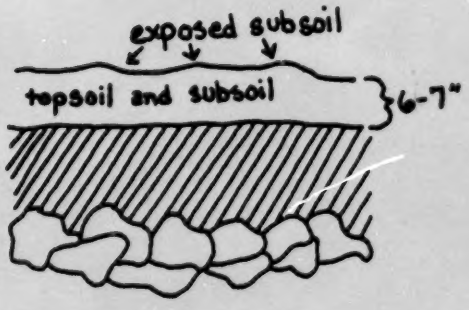
   a. Sheet erosion
   b. Wind erosion
   c. Winter erosion
   d. Gully erosion

2. Water erosion occurs wherever water:

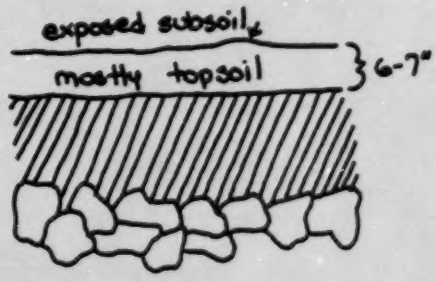
   a. Is allowed to soak the soil
   b. Is pumped in to irrigate crops
   c. Runs off over the surface of the soil

Match the correct diagram with the degrees of erosion listed on the next page:

a.



c.



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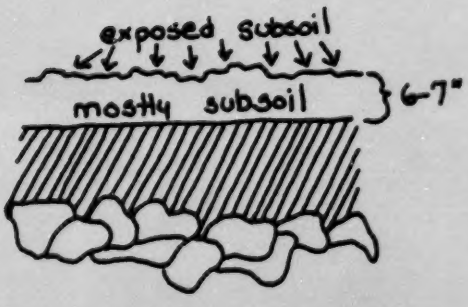


3. Choice _____ shows moderate erosion.

4. Choice _____ shows severe erosion.

5. Choice _____ shows very severe erosion.

6. What type of erosion removes a fairly uniform layer of soil from the land surface?

   a. Sheet
   b. Wind
   c. Winter
   d. Gully

7. What does the slope of a field influence?

   a. Speed with which water runs off a field
   b. Formation of limestone rock at the bottom of the slope
   c. Amount of soil that washes away
   d. Answers a and b
   e. Answers a and c

Competency:

The student will recommend practices to control wind or water from the exercise above, using a land judging score card.

8. Hays and grasses are more effective than corn or cotton in controlling soil erosion because they:

   a. Cover more of the soil for a longer period
   b. Don't require irrigation
   c. Are grown on land with less slope
   d. Cause the land to level off after several years

Match the correct diagram with the types of erosion control mesures listed below:

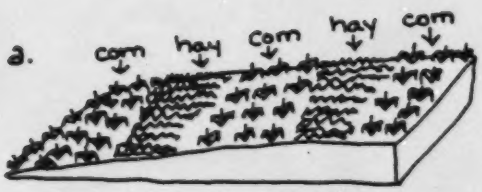
9. Choice _____ shows contouring.

10. Choice _____ shows shelter belting.

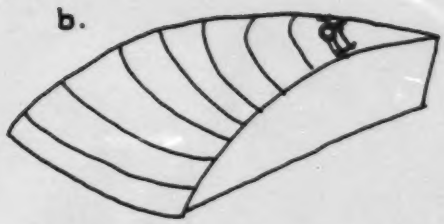
11. Choice _____ shows strip cropping.

12. Choice _____ shows terracing.

a.



b.



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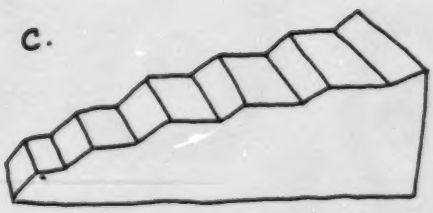
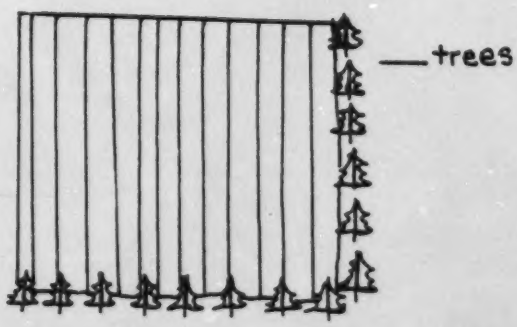


d.



13. All of the following practices help prevent erosion <u>EXCEPT</u>:

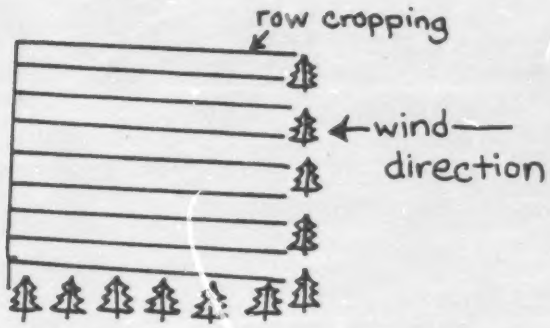
a. Rotating crops
b. Planting grass in waterways
c. Planting trees and shrubs on the edges of the field
d. Cultivating often

14. Which of the following erosion control measures may be used together?

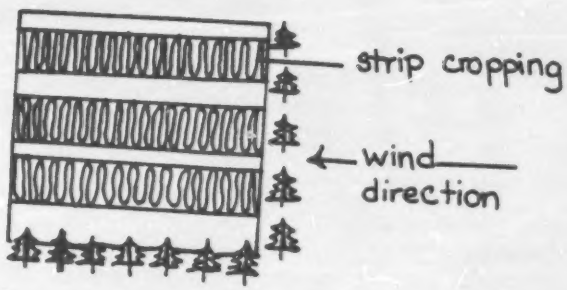
a. Strip-cropping and contouring
b. Terracing and contouring
c. Crop rotation and terracing
d. All of the above

15. On a dry, flat, windy field, a farmer should use which of the following cropping methods to best control erosion?

a.



b.



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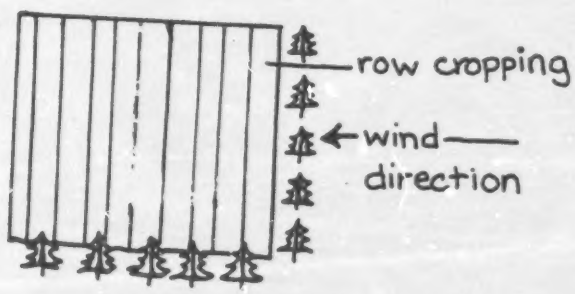

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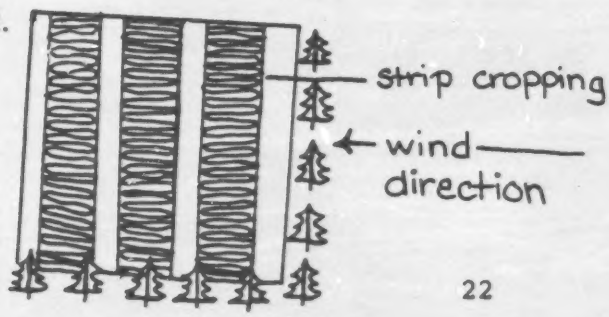


Competency:

The student will perform simple soil tests by using a soil testing kit for pH, N, P, and K.

16. Nutrients are most available to the plant at pH:

    a. 2-3
    b. 4-5
    c. 6-7
    d. 8-9

17. An acid soil has a pH:

    a. Below 7
    b. Above 10
    c. Above 7
    d. Of 7

18. Buffer solutions of pH 7 and pH 4 are used to:

    a. Clean the pH meter
    b. Put the soil into for reading
    c. Adjust the pH meter

Competency:

The student will identify selected commercial species of trees either from a collection of leaves, slides, or on a field trip.

Match the correct pictures with the following list of important commercial trees:

19. Maple is choice _____.

20. Hickory is choice _____.

21. Oak is choice _____.

a.

b.

c.

Match the pictures with the following list of important commercial trees:

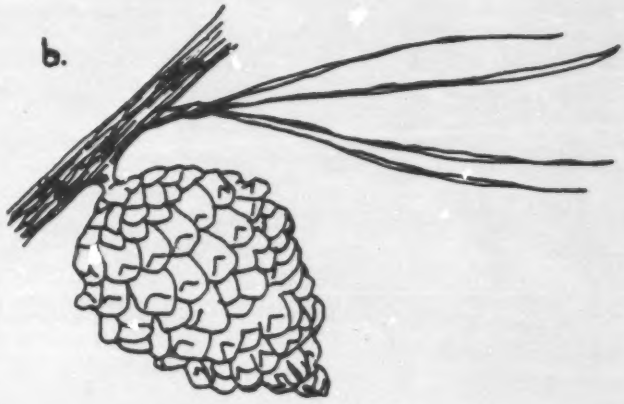
22. Southern Pine is choice _____.

23. Yellow Poplar is choice _____.

24. Sweet Gum is choice _____.

a.

b.



c.

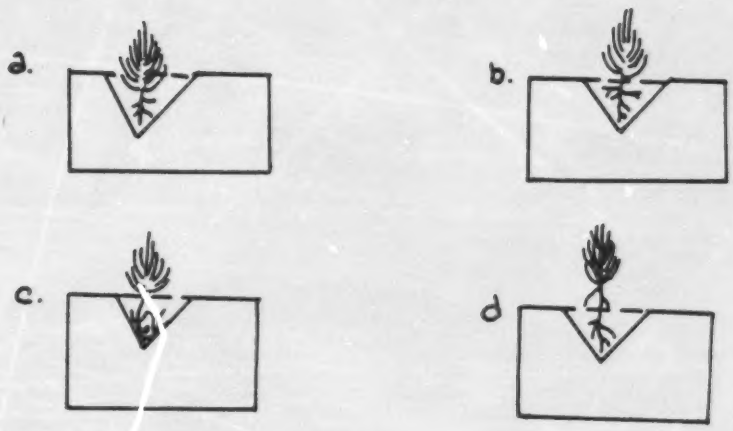
Competency:

The student will demonstrate the ability to plant selected species of trees according to approved recommendations .

25. The generally recommended spacing for pine seedlings planted in the field is:

    a. 6 X 8 feet
    b. 8 X 8 feet
    c. 10 X 10 feet
    d. 8 X 12 feet

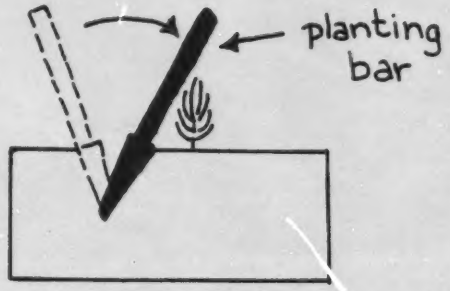
26. Which of the following illustrations shows the correct depth to plant pine seedlings?



27. During the planting operation of seedlings, which of the following practices should NOT be followed?

    a. Removing from containers if air temperature is below freezing.
    b. Allowing to dry out
    c. Doubling or folding in the planting hole
    d. All of the above

28. What part of the process of planting pine is shown in the picture below?



a. Firming the soil at the top of the roots
b. Firming the soil at the bottom of the roots
c. Planting a second seedling in case the first one planted dies
d. Applying fertilizer to the newly planted seedling

Competency:

The student will follow a management plan and explain the long-range practices needed to correct or improve a selected forest area.

29. Which of the following would you find in a management plan?

a. Estimate of income
b. Condition of the stand
c. Estimated growth rates
d. A map of the forest
e. All of the above

30. What should a written inventory of timber include?

a. Different species and their size
b. Distribution of species
c. Volume of expected products
d. Answers a and b
e. Answers a, b, and c

31. Which of the following factors has the most long-range importance?

a. Specie and variety of trees planted
b. Size of seedlings planted
c. Method of planting
d. Average yearly temperature

32. Boundaries, roads, and streams have what effect on forest land?

a. Short term improvement
b. Long term improvement
c. Short term hazard
d. Long term hazard

33. Which of the following operations should ONLY be practiced with a forest expert present?

a. Planting of trees
b. Harvesting of trees
c. Hauling of timber
d. Control burning

Competency:

The student will use woodlot equipment following proper safety, starting, operating, and maintenance procedures and dress.

34. Goggles should be worn when:

a. There is dust in the air
b. Operating any machine
c. Operating or near any machine
d. Eyes become irritated

35. When operating woodlot equipment, clothes should be:

a. Loose fitting
b. Snug to the body
c. As light-weight as possible
d. Unbuttoned if too tight

36. A machine may be left unattended after being turned off even if its parts are still moving:

a. True
b. False

37. When is the correct time to adjust a machine?

a. While running
b. While not running
c. While operating
d. Any of the above

Competency:

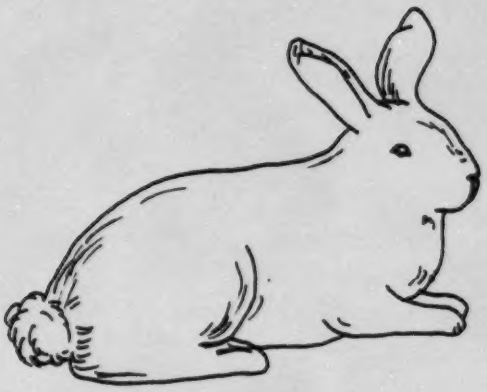
The student will identify selected wildlife from films, slides, pictures, etc.

Use the following list of animals for Questions 38 through 42.

a. Cottontail Rabbit
b. Eastern Grey Squirrel
c. Bobwhite Quail
d. Gray Wolf
e. Wild Turkey

38. ___

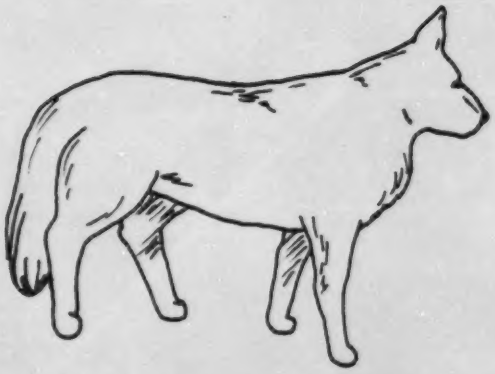
39. ___



40. ___

41. ___

42. ___



Competency:

The student will: 1) Select and/or describe the proper habitat for selected species of wildlife from films, slides, field trips, etc., and 2) Make management plans to improve wildlife habitat (cover, food, and nesting) for selected areas.

43. What animal prefers dense stands of mature trees for food, nesting, and cover?

    a. American pheasant
    b. Eastern gray squirrel
    c. Black bear
    d. Cottontail rabbit

44. The gray fox can be found in what type area(s) not populated by humans?

    a. Open areas
    b. Timbered areas
    c. Both open and timbered areas

45. What animal prefers grasslands in summer and brush or woodlands in winter?

    a. Gray fox
    b. Eastern gray squirrel
    c. Black bear
    d. Cottontail rabbit

46. Where can bobwhite quail be found?

    a. Brushland
    b. Around ponds and streams
    c. Grasslands
    d. All of the above

47. The wild turkey prefers forests with:

    a. Small open areas
    b. No young shrubs or trees
    c. Only one kind of tree
    d. Swampy, wet conditions

Match the term on the right that best applies to the measures for improving wildlife on the left.

48.	_____	Aids crop and provides cover for wildlife.	a. Wasteland
49.	_____	Should be uncleaned to provide nesting and cover.	b. Pond
50.	_____	Should be planted with shrubs or trees if bare.	c. Windbreak
51.	_____	Should be partially fenced to exclude livestock.	d. Food patch
52.	_____	A specific area, or part of the crop left uncut at harvest.	e. Fence rows

Competency:

The student will select the proper federal and state regulations for selected areas in wildlife management.

53. What may hunting and fishing permits restrict?

    a. The amount of a species killed
    b. The size of a species killed
    c. The amounts of males and females killed
    d. All of the above

54. During the closed season of a certain animal, hunting of that animal is:

    a. Allowed on private land only
    b. Not allowed at all
    c. "Closed" to those without licenses
    d. "Closed" after a certain number are killed

55. What do state wildlife refuges attempt to accomplish?

    a. Provide safe areas for wildlife
    b. Keep all wildlife inside the refuge
    c. Supply game for all non-game areas
    d. Answers a and b

56. Where do funds for wildlife protection programs come from?

a. Tax on guns and ammunition
b. Hunting and fishing license sales
c. Fishing equipment sales
d. All of the above

Competency:

The student will identify selected fish from slides, films, pictures, etc.

Use the pictures below to answer the following questions.

57. Choice _____ shows a large-mouth bass.

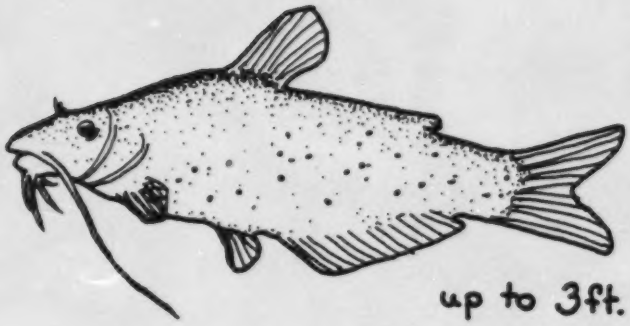
58. Choice _____ shows a Golden Shiner.

59. Choice _____ shows a Black Crappie.

60. Choice _____ shows a Florida Gar.

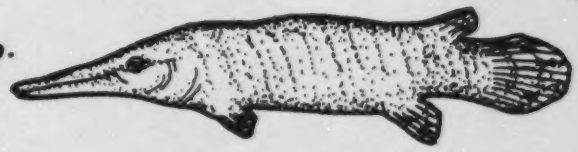
61. Choice _____ shows a Catfish.

a.



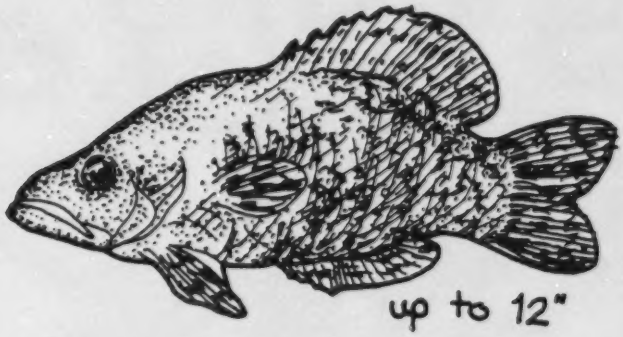
up to 3ft.

b.



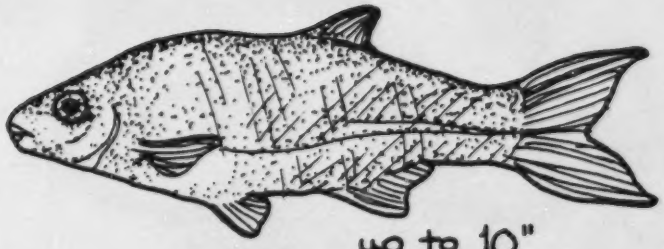
up to 3ft.

c.



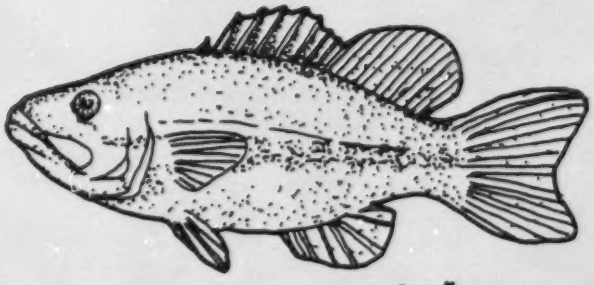
up to 12"

d.



up to 10"

e.



20"+

Competency:

The student will develop a written plan for farm pond management, including harvesting of fish, weed control, etc.

62. Why are bullhead and carp undesirable in farm ponds?

a. Chew on the fins of gamefish
b. Eat one another
c. Muddy the water by feeding on the bottom
d. All of the above

63. How do green sunfish and crappie spoil ponds/

a. Overpopulating the pond
b. Eating bass eggs
c. Eating food the bass need
d. All of the above

64. Siltation in ponds can be caused by:

a. Water run-off into the pond
b. Fishing the pond
c. Prolonged drought
d. Vegetation on the pond bottom

65. Why is pond vegetation undesirable?

a. Uses nutrients in the water
b. May favor mosquito breeding
c. May be toxic to fish and birds
d. All of the above

66. To maintain balanced pond conditions, how many bluegill or sunfish should be caught for every bass caught?

a. 1
b. 4
c. 10
d. 15

67. When small panfish are caught from an established pond or lake, they should be thrown back in.

a. True
b. False

ANSWER KEY
AGRICULTURAL RESOURCES

1.	B
2.	C
3.	C
4.	A
5.	B
6.	A
7.	E
8.	A
9.	B
10.	D
11.	A
12.	C
13.	D
14.	D
15.	D
16.	C
17.	A
18.	C
19.	B
20.	C
21.	A
22.	B
23.	C
24.	A
25.	B
26.	B
27.	D
28.	A
29.	E
30.	E
31.	A
32.	B
33.	D
34.	C
35.	B
36.	B
37.	B
38.	E
39.	A
40.	C
41.	B
42.	D
43.	B
44.	C
45.	D
46.	D
47.	A
48.	C
49.	E
50.	A
51.	B
52.	D
53.	D
54.	B
55.	A
56.	D
57.	D
58.	B
59.	A
60.	E
61.	C
62.	C
63.	D
64.	A
65.	D
66.	B
67.	B